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White pine blister rust.—The present state of our knowledge concerning this most important tree rust is ably summarized by SPAULDING⁷ in a recent contribution from the Bureau of Plant Industry. The extensive scope of the treatment is partially indicated by the bibliography of 180 titles. The opinion is expressed that *Cronartium ribicola* is of Asiatic origin, that it spread throughout Europe during the nineteenth century, and was introduced into North America on young trees of *Pinus Strobus* after 1900. The life history of the fungus and its relations with its various hosts are exhaustively discussed. It is regarded as established that the overwintering is chiefly by the mycelium in the bark of living pines, and that it is in this stage that the long migrations have taken place, but it is also recognized that the fungus may overwinter on *Ribes*. The attempts which have been made to control the disease are reviewed, and the conclusion is reached that its eradication is impossible except in the case of small isolated advance infections, but that the systematic removal of all *Ribes* in white pine forest areas will keep the disease in check, and that this method is both practicable and profitable.

ERIKSSON⁸ renews his contention that the *Peridermiums* on *Pinus Strobus*, *P. silvestris*, and *P. Cembra* are biological races of a single species in which the specialization is not yet definitely fixed. He believes that he has evidence that the white pine blister rust is transmitted by diseased seed and also from pine to pine. The direct evidence presented is not of the sort that can be regarded as final. To supplement it, so far as the matter of the spread from pine to pine is concerned, great emphasis is laid upon the undoubted autoecism of closely related species, with particular stress upon the results of HAACK. These, it is interesting to note, are characterized as worthless by SPAULDING. The latter admits, however, that the work of MEINECKE and of HEDGCOCK on *Peridermium cerebrum*, and that of KLEBAHN on *Peridermium pini* "throw doubt on the strict heteroecism of the aeciospores of all stem-inhabiting pine *Peridermiums*." This is very far from proving the autoecism of the aecidiospores of *Peridermium strobis*, as ERIKSSON seems to assume. The point is obviously one of fundamental importance, and it is to be hoped that the experiments now under way in this country will shortly throw more light upon it. ERIKSSON finds in recent American and European experiences of the overwintering of the fungus on *Ribes* a complete justification of his own early expressed belief concerning this phase of the problem. That such overwintering occurs cannot longer be doubted. That it is of any great importance in the perpetuation of the disease is still very questionable.—G. W. MARTIN.

Isoetes.—OSBORN⁹ has obtained some very interesting results from an investigation of *Isoetes Drummondii*, a species widely distributed in certain

⁷ SPAULDING, PERLEY, Investigations of the white pine blister rust. Bull. 957. U.S. Dept. Agric. pp. 100. pls. 6. figs. 13. 1922.

⁸ ERIKSSON, JAKOB, The connection between *Peridermium strobis* Kleb. and *Cronartium ribicola* Dietr., is it obligate or not? A critical review. Arkiv Botanik 18: 1-40. figs. 6. 1922.

⁹ OSBORN, T. G. B., Some observations on *Isoetes Drummondii* A. Br. Ann. Botany 36: 41-54. figs. 15. 1922.